

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IB2004/004413

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, WPI Data, PAJ, Sequence Search

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DELIASSUS S ET AL: "PCR-based analysis of the murine immunoglobulin heavy-chain repertoire" JOURNAL OF IMMUNOLOGICAL METHODS, ELSEVIER SCIENCE PUBLISHERS B.V.,AMSTERDAM, NL, vol. 184, no. 2, 18 August 1995 (1995-08-18), pages 219-229, XP004020989 ISSN: 0022-1759	1,2,4,24
Y	the whole document  ----- -/--	3,5-23, 26-54

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

**° Special categories of cited documents :**

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
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- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

25 April 2005

Date of mailing of the international search report

10/05/2005

Name and mailing address of the ISA

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FEUCHTENBERGER M ET AL: "Semiquantitative and qualitative assessment of B-lymphocyte VH repertoire by a fluorescent multiplex PCR" JOURNAL OF IMMUNOLOGICAL METHODS, ELSEVIER SCIENCE PUBLISHERS B.V.,AMSTERDAM, NL, vol. 276, no. 1-2, 1 May 2003 (2003-05-01), pages 121-127, XP004422646 ISSN: 0022-1759	1,2,4,24
Y	the whole document	3,5-23, 26-54
Y	----- LIM A ET AL: "Combination of MHC-peptide multimer-based T cell sorting with the Immunoscope permits sensitive ex vivo quantitation and follow-up of human CD8<+> T cell immune responses" JOURNAL OF IMMUNOLOGICAL METHODS, ELSEVIER SCIENCE PUBLISHERS B.V.,AMSTERDAM, NL, vol. 261, no. 1-2, 1 March 2002 (2002-03-01), pages 177-194, XP004341278 ISSN: 0022-1759	1-54
Y	the whole document	
Y	----- COLLETTE A ET AL: "New methods and software tools for high throughput CDR3 spectratyping. Application to T lymphocyte repertoire modifications during experimental malaria" JOURNAL OF IMMUNOLOGICAL METHODS, ELSEVIER SCIENCE PUBLISHERS B.V.,AMSTERDAM, NL, vol. 278, no. 1-2, July 2003 (2003-07), pages 105-116, XP004453168 ISSN: 0022-1759	1-54
Y	the whole document	
Y	----- PANNETIER C ET AL: "THE SIZES OF THE CDR3 HYPERVARIABLE REGIONS OF THE MURINE T-CELL RECEPTOR BETA CHAINS VARY AS A FUNCTION OF THE RECOMBINED GERM-LINE SEGMENTS" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, vol. 90, May 1993 (1993-05), pages 4319-4323, XP002951502 ISSN: 0027-8424	1-54
	cited in the application the whole document	
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## INTERNATIONAL SEARCH REPORT

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ARSTILA T PETTERI ET AL: "A direct estimate of the human alphabeta T cell receptor diversity" SCIENCE (WASHINGTON D C), vol. 286, no. 5441, 29 October 1999 (1999-10-29), pages 958-961, XP001191021 ISSN: 0036-8075 cited in the application the whole document	1-54
Y	----- LEFRANC M P: "IMGT, the international ImMunoGeneTics database." NUCLEIC ACIDS RESEARCH. 1 JAN 2001, vol. 29, no. 1, 1 January 2001 (2001-01-01), pages 207-209, XP002281078 ISSN: 1362-4962 cited in the application the whole document	1-54
Y	----- DATABASE EBI 'Online! EMBL; Sequence 56 from US6300129 16 September 2003 (2003-09-16), LONBERG, N., KAY, R.M.: XP002281108 retrieved from EMBL accession no. AR369855 Database accession no. AR369855 the whole document	1-54
Y	----- DATABASE EBI EMBL; Sequence 7 from W00175091 29 October 2001 (2001-10-29), OHLIN, M. ET AL.: XP002281109 retrieved from EMBL accession no. AX268890 Database accession no. AX268890 the whole document & WO 01/75091 A (BIOINVENT INTERNAT AB ; CARLSSON ROLAND (SE); OHLIN MATS (SE); SODERLI) 11 October 2001 (2001-10-11)	1-54
Y	----- DATABASE EBI EMBL; Sequence 18 from W00175091 29 October 2001 (2001-10-29), OHLIN, M. ET AL.: XP002281110 retrieved from EMBL accession no. AX268901 Database accession no. AX268901 the whole document & WO 01/75091 A (BIOINVENT INTERNAT AB ; CARLSSON ROLAND (SE); OHLIN MATS (SE); SODERLI) 11 October 2001 (2001-10-11)	1-54

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## INTERNATIONAL SEARCH REPORT

 International Application No  
 PCT/IB2004/004413

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DATABASE EBI EMBL; Sequence 21 of US6005091 13 September 2000 (2000-09-13), BLACKBURN M. NEAL ET AL.: XP002281111 retrieved from EMBL accession no. AR096134 Database accession no. AR096134 the whole document -----	1-54
Y	DATABASE EBI EMBL; Sequence 146 from US6300129 16 September 2003 (2003-09-16), LONBERG, N. ET AL.: XP002281112 retrieved from EMBL accession no. AR369914 Database accession no. AR369914 the whole document -----	1-54
Y	DATABASE EBI EMBL; Sequence 350 from US6300129 16 September 2003 (2003-09-16), LONBERG N. ET AL.: XP002281113 retrieved from EMBL accession no. AR370100 Database accession no. AR370100 the whole document -----	1-54
Y	DATABASE EBI EMBL; Sequence 2 from US2002168397 11 April 2003 (2003-04-11), TSUJI, K. ET AL.: XP002281114 retrieved from EMBL accession no. AR264699 Database accession no. AR264699 the whole document -----	1-54
Y	DATABASE EBI EMBL; Sequence 4 from W08803145 16 February 1995 (1995-02-16), LIU, A.Y. ET AL.: XP002281115 retrieved from EMBL accession no. I05932 Database accession no. I05932 the whole document & WO 88/03145 A (ONCOGEN ; INT GENETIC ENG (US)) 5 May 1988 (1988-05-05) -----	1-54
Y	DATABASE EBI EMBL; Sequence 10 from W00213862 9 August 2002 (2002-08-09), GOLD, D.P. ET AL.: XP002281116 retrieved from EMBL accession no. AX473360 Database accession no. AX473360 the whole document -----	1-54

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/004413

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	& WO 02/13862 A (GOLD DANIEL P ; FAVRILLE INC (US); SHOPE ROBERT J (US)) 21 February 2002 (2002-02-21) ----- DATABASE EBI EMBL; Sequence 36 from W09915696 26 January 2000 (2000-01-26), QIN, Y.: XP002281117 retrieved from EMBL accession no. A97536 Database accession no. A97536 the whole document & WO 99/15696 A (QIN YUFEN) 1 April 1999 (1999-04-01) -----	1-54
Y	DATABASE EBI EMBL; JH reporter probe from W09219775 24 November 1994 (1994-11-24), XP002281118 retrieved from EMBL accession no. A22452 Database accession no. A22452 the whole document & WO 92/19775 A (RAGGIO ITALGENE SPA) 12 November 1992 (1992-11-12) -----	1-54
Y	DATABASE EMBL 'Online! 21 December 2002 (2002-12-21), "Sequence 36 from patent US 6476198." XP002325887 retrieved from EBI accession no. EM_PRO:AR243947 Database accession no. AR243947 the whole document & US 6 476 198 B1 (KANG ANGRAY SINGH) 5 November 2002 (2002-11-05) the whole document -----	1-54
Y	DATABASE EMBL 'Online! 13 August 2003 (2003-08-13), "Novel Fab fragment libraries and method of using the same." XP002325888 retrieved from EBI accession no. EM_PAT:BD271410 Database accession no. BD271410 the whole document & EP 1 054 018 A (TARGET QUEST B.V) 22 November 2000 (2000-11-22) -----	1-54

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# INTERNATIONAL SEARCH REPORT

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PCT/IB2004/004413

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>DATABASE EMBL 'Online! 25 November 2003 (2003-11-25), "Sequence 121 from Patent W003059951." XP002325889 retrieved from EBI accession no. EM_PAT:AX805724 Database accession no. AX805724 the whole document</p>	1-54
Y	<p>DATABASE EMBL 'Online! 9 August 1999 (1999-08-09), "PCR primer for human immunoglobulin C alpha gene." XP002325890 retrieved from EBI accession no. EM_PAT:E16974 Database accession no. E16974 the whole document</p>	1-54
A	<p>WHITE HARRY N: "Restriction-PCR fingerprinting of the immunoglobulin VH repertoire: Direct detection of an immune response and global analysis of B cell clonality" EUROPEAN JOURNAL OF IMMUNOLOGY, vol. 28, no. 10, October 1998 (1998-10), pages 3268-3279, XP002281079 ISSN: 0014-2980 the whole document</p>	1-54

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB2004/004413

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0175091	A	11-10-2001	AT 269900 T AU 5225301 A CA 2402240 A1 DE 60103988 D1 WO 0175091 A2 EP 1268801 A2 JP 2003529368 T NO 20024723 A	15-07-2004 15-10-2001 11-10-2001 29-07-2004 11-10-2001 02-01-2003 07-10-2003 02-12-2002
WO 8803145	A	05-05-1988	AT 117370 T AU 656633 B2 AU 2810592 A AU 626254 B2 AU 8326187 A DE 3751004 D1 DE 3751004 T2 DK 354288 A EP 0266663 A1 ES 2069527 T3 FI 891984 A GR 3015810 T3 HU 52153 A2 IE 62304 B1 IL 84285 A JP 2501886 T NZ 222309 A OA 9115 A PT 85995 A , B WO 8803145 A1 US 5354847 A ZA 8708044 A	15-02-1995 09-02-1995 28-01-1993 30-07-1992 25-05-1988 02-03-1995 24-05-1995 27-06-1988 11-05-1988 16-05-1995 26-04-1989 31-07-1995 28-06-1990 25-01-1995 15-03-1993 28-06-1990 26-02-1990 31-10-1991 01-11-1987 05-05-1988 11-10-1994 25-04-1988
WO 0213862	A	21-02-2002	AU 1121402 A AU 8330401 A CA 2416794 A1 CA 2416898 A1 CN 1468123 A CN 1468124 A EP 1309373 A2 EP 1309347 A2 JP 2004506021 T JP 2004506022 T WO 0213861 A2 WO 0213862 A2 US 2003082178 A1 US 2003012782 A1	25-02-2002 25-02-2002 21-02-2002 21-02-2002 14-01-2004 14-01-2004 14-05-2003 14-05-2003 26-02-2004 26-02-2004 21-02-2002 21-02-2002 01-05-2003 16-01-2003
WO 9915696	A	01-04-1999	CA 2216595 A1 CA 2220245 A1 AU 9148498 A CA 2303978 A1 WO 9915696 A1 EP 1015633 A1	19-03-1999 04-05-1999 12-04-1999 01-04-1999 01-04-1999 05-07-2000
WO 9219775	A	12-11-1992	IT 1244983 B AU 666648 B2 AU 1649992 A CA 2109518 A1	13-09-1994 22-02-1996 21-12-1992 30-10-1992

# INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/IB2004/004413

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9219775	A	WO 9219775 A1	12-11-1992
		EP 0583284 A1	23-02-1994
		JP 6509464 T	27-10-1994
US 6476198	B1	05-11-2002	
		AU 6340996 A	30-01-1997
		WO 9701580 A1	16-01-1997
EP 1054018	A	22-11-2000	
		EP 1054018 A1	22-11-2000
		AU 780145 B2	03-03-2005
		AU 5142200 A	05-12-2000
		CA 2372582 A1	23-11-2000
		JP 2002543830 T	24-12-2002
		WO 0070023 A1	23-11-2000
		US 2002102613 A1	01-08-2002